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MYSIDIUM RICKETTSI, A NEW SPECIES OF MYSID FROM THE GULF OF CALIFORNIA (CRUSTACEA: MYSIDACEA: MYSIDAE)

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Abstract.—*Mysidium rickettsi,* the sixth species of the genus and the first from the Pacific Ocean, is described from the Gulf of California. It is characterized by the armament and proportions of the telson, the subdivision of the sixth segment of the endopod of the pereopods, and the length of the peduncle of antenna 2 in relation to the scale.

The genus *Mysidium* Dana includes *M. gracile* (Dana, 1852) from Brazil, Florida, Bermuda, Jamaica, Puerto Rico, Curaçao, Venezuela, and the Virgin Islands; *M. colombiae* (Zimmer, 1915) from Colombia (Atlantic side), the Bahamas, the Florida Keys, Jamaica, the Virgin Islands, Cuba, Mexico, Belize, and Venezuela; *M. integrum* W. Tattersall, 1951, from Florida, the Virgin Islands, the Bahamas, the West Indies, Puerto Rico, Belize, and the Gulf of Mexico; and *M. rubroculatum* and *M. cubanensis* Băcescu and Ortiz, 1984 from Cuba. A 6th species, the first from the Pacific is described below.

Mysidium rickettsi, new species
Figs. 1–3

Material.—Male holotype (USNM 233310) female allotype (USNM 233311), and 50+ paratypes (USNM 81113), from Pt. Marcial, Gulf of California 25°31′N, 111°01′W, surface, collected with night light by E. R. Ricketts and J. Steinbeck, 24 Mar 1940; additional material (USNM 81114) was collected with night light by E. R. Ricketts and J. Steinbeck in Bahía de Ohuira (=San Carlos Bay), 25°38′N, 108°58′W, Sonora, Mexico, 4 Apr 1940. Specimens were also found in the stomachs of two species of manta rays collected from four localities in the Gulf of California by Giuseppe Metabartolo di Sciara: From *Mobula thurstoni*: southern Gulf of California, peninsular side, near La Paz, in water 10 m deep or less; near the eastern shore of Isla San Francisco, Punta Arena de la Ventana, 24°04′N,109°52′W, and Bahía de la Ventana, 24°05′N,109°55′W. From *Mobula munkiana*: Estero on southwest side of Isla San José, 24°55′N,110°38′W; and Bahía de la Ventana.

Etymology.—Named for the late Edward F. Ricketts, whose pioneering work on the fauna of the Gulf of California is recorded in Steinbeck and Ricketts (1941).

Description.—Length up to 10 mm. Rostrum round-triangular; posterior margin of carapace emarginate, exposing last pereonite. Eyestalk subquadrate, cornea covering approximately half. Telson entire, rounded apically; about twice as long as wide, tapering posteriorly; posterior half with closely spaced short, blunt, marginal spines (30–37 on each side).

Antenna 1: Segment 1 of peduncle about one-third longer than wide, slightly longer than segment 3; distolateral corner produced into short rounded process. Segment 2 short, trapezoidal, length of longer (medial) margin less than half that of segment 3. Segment 3 nearly as long as wide, with small lobe on distodorsal margin at base of each flagellum, and with pair of long setae at distomedial corner in ♀. Male lobe lan-

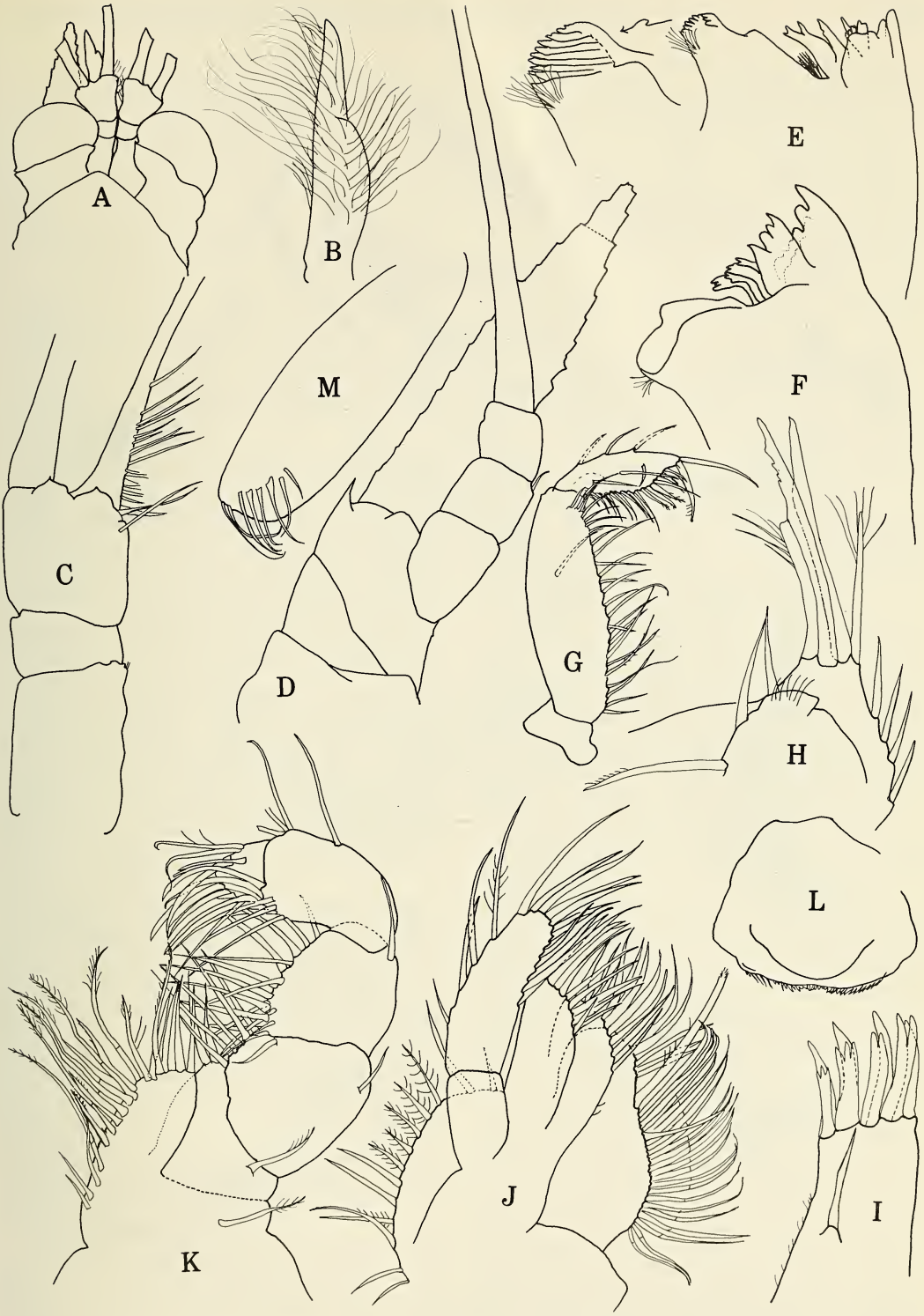

Fig. 1. *Mysidium rickettsi*: A, Anterior end, dorsal; B, Appendix masculina, medial; C, Antenna 1 peduncle, dorsal; D, Antenna 2, dorsal; E, Right mandible, with detail of incisor; F, Left mandible; G, Mandibular palp; H,I, Inner and outer lobes of maxilla 1; J, Maxilla 2; K, Maxilliped; L, Labrum; M, Penis.

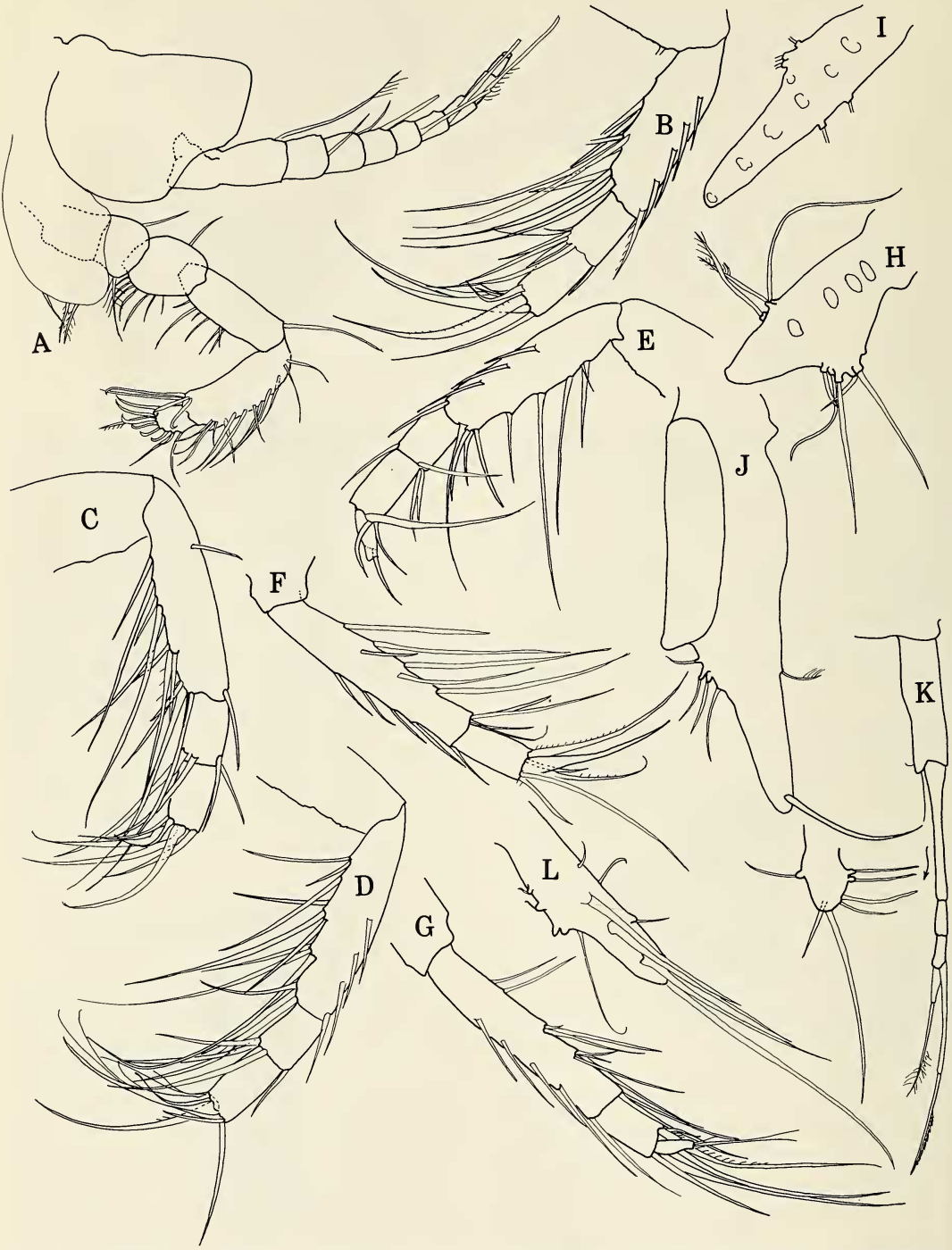

Fig. 2. *Mysidium rickettsi*: A, Pereopod 1; B–G, Dactyl, "tarsal" segments, and distal part of merus of Pereopods 2–7, setae of merus not shown; H–L, Pleopods 1–5.

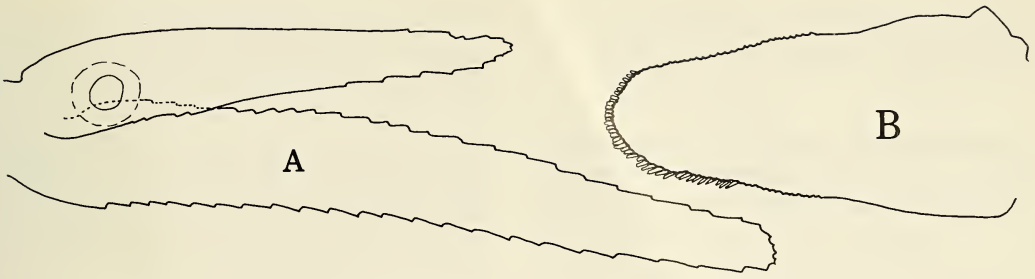

Fig. 3. *Mysidium rickettsi*: A, Uropod; B, Telson.

ceolate, 8× as long as wide, proximal ⅔ expanded ventrally, entire ventral surface with long fine setae.

Antenna 2, scale lanceolate, slightly more than 4× longer than greatest width, with suture separating distal segment; lateral margin straight, medial margin slightly convex. Peduncle with 5 segments, 2 broad proximal segments and 3 narrower distal segments; distolateral corner of segment 2 produced into acute tooth. Peduncle and scale subequal in length.

Right mandible: Incisor 3-cuspate; lacinia subcylindrical, apex produced into 2 compound cusps, spine-row with 5–6 spines, anterior spine robust, compound, others denticulate; molar grinding surface striate, medial margin denticulate, tuft of hairs on posterior margin.

Left mandible: Incisor 6-cuspate, lacinia sub-cylindrical, 4-cuspate, spine row with 4 spines, all denticulate. Molar blunt, posterior tuft of hairs shorter than in right mandible. Palp with very short 1st segment, 2nd segment 1.8× length of 3rd; 2nd and 3rd segments setose on medial margin, 3rd segment tapering in distal 3rd with 2 stout apical spines.

Labium: With short, apically rounded paragnaths with fringe of short setae on medial margins.

Maxilla 1: Outer lobe with 1 surface seta and about 9 apical spines, inner lobe with 4 long apical setae and about 7 shorter subapical setae.

Maxilla 2: Endites well developed, heavily setose; distal segment of endopod about 1.8× as long as proximal segment, finger-like in shape. Exopod not reaching distal margin of proximal segment of endopod, with ca. 13 plumose marginal setae.

Maxilliped (endopod of thoracopod 1): Endite of basis well developed, nearly reaching distal margin of ischium; medial margins of segments densely setose.

Pereopod 1 (endopod of thoracopod 2): Merus with 7 setae on anterior margin, propus with 2 long and 2 shorter setae at anterodistal corner, 4 setae at posterodistal corner and row of setae on posterior margin; dactyl with 7–8 hooked plumose setae and 3 longer, more slender setae. Pereopods 2–5 with 3 tarsal segments, 6 and 7 with 2.

Penis: Oval, with diagonal row of setae near apex.

Pleopods: Pleopods 1–4 successively longer. Pleopod 5 shorter than 2. Pleopods 1–3 and 5, viewed laterally, with straight ventral margin with 5 or more long setae arranged stepwise along length and one at apex; dorsal margin straight along proximal part, then curving inward to posteroventral corner; pseudobranchial lobe with cluster of short, fine, setae with inflated bases; other single or grouped setae of same type on lateral face. Pleopod 4 extending beyond distal end of pleon, with seta of 3rd segment reaching to end of telson. Endopod represented by short simple lobe bearing 7 setae, distal seta 3× as long as others; exopod very long and slender, 4-segmented, relative lengths (%) of segments 1–4 = 58:14:14:14.

Uropod endopod 1.5 as long as exopod, both tapering distally; exopod 5x as long as wide, endopod 7.6× as long as wide.

Comparisons.—*Mysidium rickettsi* is much longer (10 mm) than its Atlantic congeners, whose maximum recorded lengths in mm are *M. columbiae* 7.3, *M. cubanense* 5.2, *M. gracile* 6.5, *M. integrum* 7.0, *M. rubroculatum* 4.5. The telson of *M. rickettsi* is relatively longer than in most other species, having a length/width ratio of slightly more than 2.0. For the other species this ratio is *M. columbiae* 1.5, *M. cubanense* 2.0, *M. gracile* 1.7, *M. integrum* 1.7, *M. rubroculatum* 1.9. The maximum number of marginal spines on the telson of *M. rickettsi,* 74, is the highest in the genus (*M. columbiae* 52, *M. cubanense* 35, *M. gracile* 50, *M. integrum* 70, *M. rubroculatum* 37. The apex of the telson is transversely rounded in *M. rickettsi, M. cubanense, M. integrum,* and *M. rubroculatum,* in contrast to *M. gracile,* where it is shallowly emarginate, and *M. columbiae,* in which it is distinctly excavated.

The relative lengths of the tarsal segments of pereopods 2–6 differs in species of *Mysidium.* The first segment is much longer than the following two in *M. colombiae, M. cubanense, M. gracile,* and *M. rickettsi.* In *M. integrum* and *M. rubroculatum* the three tarsal segments are subequal. In *M. columbiae* there are three segments in the tarsus of pereopod 2, but only two segments in pereopods 3–7; in pereopod 2 the first segment is distinctly longer than the second or third.

The relative lengths of the segments of the exopod of the ♂ pleopod 4 is a useful taxonomic character in *Mysidium* (Brattegard 1969: Table 6). In *M. rickettsi* and *M. gracile* segments 2–4 are subequal in length. In *M. rubroculatum* and *M. integrum* segment 2 is distinctly longer than 3 or 4. In *M. cubanense* and *M. colombiae* the endopod has only three segments.

Ecology.—Steinbeck and Ricketts (1941: 152) reported that the mysids here described as *M. rickettsi* occurred in swarms, perhaps resulting from the light used in night collecting. Small fish were noticed feeding around the edges of these swarms. The presence of large numbers of *M. rickettsi* in ray stomachs suggests that swarming does occur under natural conditions, for seeking individual mysids for food would be an unprofitable expenditure of energy.

Brattegard (1969: 82,86,88) mentions that shoaling in *M. gracile, M. integrum,* and *M. colombiae* has been reported from Bermuda and the Florida keys. Băcescu and Ortiz (1984:21) reported shoaling in *M. rubroculatum.* Steven (1961), studying the shoaling behavior of *M. colombiae* in Jamaica, reported that this species shoals when the number of specimens is above a critical figure. Hahn and Itzkowitz (1986) studied site preference and homing behavior in *M. gracile.*

Acknowledgments

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